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<110> Tucker, Kenneth
Plosila, Laura

<120> Moraxella catarrhalis outer membrane proteins-106 polypeptide,
gene sequence and uses thereof.

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<141> 2001-03-20

<150> 08/968685

<151> 1997-11-12

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<170> PatentIn version 3.3

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Lys Gln Asn Thr Gly Ala Thr Pro Ala Thr Asn Ser Lys Thr Ile Gly
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Val Asp Gly Leu Lys Phe Thr Asp Asn Asn Gly Ile Ala Leu Asp Gly
805 810 815

Thr Thr Tyr Ile Thr Lys Asp Lys Val Gly Phe Ala Lys Gln Asp Gly
820 825 830

Ser Leu Asp Lys Ser Lys Pro Tyr Leu Asp Lys Asp Lys Leu Lys Val
835 840 845

Gly Glu Val Glu Ile Thr Thr Asn Gly Ile Asn Ala Gly Gly Lys Ala
850 855 860

Ile Thr Gly Leu Ser Asn Thr Leu Thr Asp Ala Thr Asn Ala Thr Thr
865 870 875 880

Gly His Val Thr Gln Leu Gly Ile Val Asp Ser Thr Asp Lys Thr Arg
885 890 895

Ala Ala Ser Ile Gly Asp Val Leu Asn Ala Gly Phe Asn Leu Lys Asn
900 905 910

Asn Gly Asp Ala Lys Asp Phe Val Ser Thr Tyr Asp Thr Val Asp Phe
915 920 925

Ile Asn Gly Asn Ala Thr Thr Ala Lys Val Thr Tyr Asp Gly Lys Ala
930 935 940

Ser Lys Val Ala Tyr Asp Val Asn Val Asp Gly Thr Thr Ile His Leu
945 950 955 960

Thr Gly Ala Asp Gly Asn Lys Asn Gln Ile Gly Val Lys Thr Thr Thr
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Leu Thr Lys Thr Asp Ala Lys Gly Asp Lys Ala Ile Asn Phe Ser Val
980 985 990

Asn Ser Gly Asp Asp Lys Ala Leu Ile Asn Ala Lys Asp Ile Ala Asp
995 1000 1005

Asn Leu Asn Thr Leu Ala Gly Glu Ile Arg Asn Thr Lys Gly Thr
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 Ala Asp Thr Ala Leu Gln Thr Phe Gln Val Lys Lys Val Lys Glu
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 Asn Gly Asp Asp Asp Asn Asp Ala Asp Thr Ile Thr Val Gly Lys
 1040 1045 1050
 Asp Ala Lys Thr Asn Gln Val Asn Thr Leu Lys Leu Lys Gly Lys
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 1070 1075 1080
 Gly Ile Asn Thr Gln Ser Gly Leu Lys Ala Gly Asn Asn Thr Thr
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 Leu Asn Asn Asn Gly Leu Ser Ile Lys Asn Thr Ala Gly Asn Glu
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 Gln Ile Gln Val Gly Ala Asp Gly Val Lys Phe Ala Lys Val Asn
 1115 1120 1125
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 Arg Asp Glu Ile Gly Phe Ala Gly Thr Asn Gly Ser Leu Asp Lys
 1145 1150 1155
 Ser Lys Pro His Leu Ser Lys Asp Gly Ile Asn Ala Gly Gly Lys
 1160 1165 1170
 Lys Ile Thr Asn Ile Gln Ser Gly Glu Ile Ala Gln Asn Ser Asn
 1175 1180 1185
 Asp Ala Val Thr Gly Gly Lys Ile Tyr Asp Leu Lys Thr Glu Leu
 1190 1195 1200
 Glu Asn Lys Ile Ser Ser Thr Ala Lys Thr Ala Gln Asn Ser Leu
 1205 1210 1215
 His Glu Phe Ser Val Ala Asp Glu Gln Gly Asn Asn Phe Thr Val
 1220 1225 1230
 Ser Asn Pro Tyr Ser Ser Tyr Asp Thr Ser Lys Thr Ser Asp Val
 1235 1240 1245

Ile Thr Phe Ala Gly Glu Asn Gly Ile Thr Thr Lys Val Asn Lys
 1250 1255 1260
 Gly Val Val Arg Val Gly Ile Asp Gln Thr Lys Gly Leu Thr Thr
 1265 1270 1275
 Pro Lys Leu Thr Val Gly Asn Asn Asn Gly Lys Gly Ile Val Ile
 1280 1285 1290
 Asp Ser Gln Asn Gly Gln Asn Thr Ile Thr Gly Leu Ser Asn Thr
 1295 1300 1305
 Leu Ala Asn Val Thr Asn Asp Lys Gly Ser Val Arg Thr Thr Glu
 1310 1315 1320
 Gln Gly Lys Ile Ile Lys Asp Glu Asp Lys Thr Arg Ala Ala Ser
 1325 1330 1335
 Ile Val Asp Val Leu Ser Ala Gly Phe Asn Leu Gln Gly Asn Gly
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 Glu Ala Val Asp Phe Val Ser Thr Tyr Asp Thr Val Asn Phe Ala
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 Asp Gly Asn Ala Thr Thr Ala Lys Val Thr Tyr Asp Asp Thr Ser
 1370 1375 1380
 Lys Thr Ser Lys Val Val Tyr Asp Val Asn Val Asp Asp Thr Thr
 1385 1390 1395
 Ile Glu Val Lys Asp Lys Lys Leu Gly Val Lys Thr Thr Thr Leu
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 Thr Ser Thr Gly Thr Gly Ala Asn Lys Phe Ala Leu Ser Asn Gln
 1415 1420 1425
 Ala Thr Gly Asp Ala Leu Val Lys Ala Ser Asp Ile Val Ala His
 1430 1435 1440
 Leu Asn Thr Leu Ser Gly Asp Ile Gln Thr Ala Lys Gly Ala Ser
 1445 1450 1455
 Gln Ala Asn Ser Ser Ala Gly Tyr Val Asp Ala Asp Gly Asn Lys
 1460 1465 1470
 Val Ile Tyr Asp Ser Thr Asp Asn Lys Tyr Tyr Gln Ala Lys Asn
 1475 1480 1485
 Asp Gly Thr Val Asp Lys Thr Lys Glu Val Ala Lys Asp Lys Leu

1490	1495	1500
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Val Lys 1520	Ser Val Ile Asn Lys 1525	Glu Gln Val Asn Asp 1530 Ala Asn Lys
Lys Gln 1535	Gly Ile Asn Glu Asp 1540	Asn Ala Phe Val Lys 1545 Gly Leu Glu
Lys Ala 1550	Ala Ser Asp Asn Lys 1555	Thr Lys Asn Ala Ala 1560 Val Thr Val
Gly Asp 1565	Leu Asn Ala Val Ala 1570	Gln Thr Pro Leu Thr 1575 Phe Ala Gly
Asp Thr 1580	Gly Thr Thr Ala Lys 1585	Lys Leu Gly Glu Thr 1590 Leu Thr Ile
Lys Gly 1595	Gly Gln Thr Asp Thr 1600	Asn Lys Leu Thr Asp 1605 Asn Asn Ile
Gly Val 1610	Val Ala Gly Thr Asp 1615	Gly Phe Thr Val Lys 1620 Leu Ala Lys
Asp Leu 1625	Thr Asn Leu Asn Ser 1630	Val Asn Ala Gly Gly 1635 Thr Lys Ile
Asp Asp 1640	Lys Gly Val Ser Phe 1645	Val Asp Ser Ser Gly 1650 Gln Ala Lys
Ala Asn 1655	Thr Pro Val Leu Ser 1660	Ala Asn Gly Leu Asp 1665 Leu Gly Gly
Lys Val 1670	Ile Ser Asn Val Gly 1675	Lys Gly Thr Lys Asp 1680 Thr Asp Ala
Ala Asn 1685	Val Gln Gln Leu Asn 1690	Glu Val Arg Asn Leu 1695 Leu Gly Leu
Gly Asn 1700	Ala Gly Asn Asp Asn 1705	Ala Asp Gly Asn Gln 1710 Val Asn Ile
Ala Asp 1715	Ile Lys Lys Asp Pro 1720	Asn Ser Gly Ser Ser 1725 Ser Asn Arg
Thr Val 1730	Ile Lys Ala Gly Thr 1735	Val Leu Gly Gly Lys 1740 Gly Asn Asn

Asp Thr Glu Lys Leu Ala Thr Gly Gly Val Gln Val Gly Val Asp
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 Lys Asp Gly Asn Ala Asn Gly Asp Leu Ser Asn Val Trp Val Lys
 1760 1765 1770
 Thr Gln Lys Asp Gly Ser Lys Lys Ala Leu Leu Ala Thr Tyr Asn
 1775 1780 1785
 Ala Ala Gly Gln Thr Asn Tyr Leu Thr Asn Asn Pro Ala Glu Ala
 1790 1795 1800
 Ile Asp Arg Ile Asn Glu Gln Gly Ile Arg Phe Phe His Val Asn
 1805 1810 1815
 Asp Gly Asn Gln Glu Pro Val Val Gln Gly Arg Asn Gly Ile Asp
 1820 1825 1830
 Ser Ser Ala Ser Gly Lys His Ser Val Ala Ile Gly Phe Gln Ala
 1835 1840 1845
 Lys Ala Asp Gly Glu Ala Ala Val Ala Ile Gly Arg Gln Thr Gln
 1850 1855 1860
 Ala Gly Asn Gln Ser Ile Ala Ile Gly Asp Asn Ala Gln Ala Thr
 1865 1870 1875
 Gly Asp Gln Ser Ile Ala Ile Gly Thr Gly Asn Val Val Ala Gly
 1880 1885 1890
 Lys His Ser Gly Ala Ile Gly Asp Pro Ser Thr Val Lys Ala Asp
 1895 1900 1905
 Asn Ser Tyr Ser Val Gly Asn Asn Asn Gln Phe Thr Asp Ala Thr
 1910 1915 1920
 Gln Thr Asp Val Phe Gly Val Gly Asn Asn Ile Thr Val Thr Glu
 1925 1930 1935
 Ser Asn Ser Val Ala Leu Gly Ser Asn Ser Ala Ile Ser Ala Gly
 1940 1945 1950
 Thr His Ala Gly Thr Gln Ala Lys Lys Ser Asp Gly Thr Ala Gly
 1955 1960 1965
 Thr Thr Thr Thr Ala Gly Ala Thr Gly Thr Val Lys Gly Phe Ala
 1970 1975 1980

Gly Gln Thr Ala Val Gly Ala Val Ser Val Gly Ala Ser Gly Ala
1985 1990 1995

Glu Arg Arg Ile Gln Asn Val Ala Ala Gly Glu Val Ser Ala Thr
2000 2005 2010

Ser Thr Asp Ala Val Asn Gly Ser Gln Leu Tyr Lys Ala Thr Gln
2015 2020 2025

Gly Ile Ala Asn Ala Thr Asn Glu Leu Asp His Arg Ile His Gln
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Asn Glu Asn Lys Ala Asn Ala Gly Ile Ser Ser Ala Met Ala Met
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Ala Ser Met Pro Gln Ala Tyr Ile Pro Gly Arg Ser Met Val Thr
2060 2065 2070

Gly Gly Ile Ala Thr His Asn Gly Gln Gly Ala Val Ala Val Gly
2075 2080 2085

Leu Ser Lys Leu Ser Asp Asn Gly Gln Trp Val Phe Lys Ile Asn
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18

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18

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